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Constellation Energy

March 4, 2005

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 2; Docket No. 50-318
Request for Relaxation from NRC Revised Order EA-03-009, "Issuance of First Revised NRC Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

REFERENCES:

(a) Letter from G. Vanderheyden (CCNPP) to Document Control Desk (NRC), dated January 14, 2005, same subject

(b) Letter from R. W. Brochardt (NRC) to G. Vanderheyden (CCNPP), dated February 20, 2004, Issuance of First Revised NRC Order (EA-03-009)

By letter dated January 14, 2005, (Reference a), Calvert Cliffs Nuclear Power Plant, Inc. submitted a request for relaxation from the inspection requirements of Section IV.C(5)(b)(i) of the First Revised Order EA-03-009 (Reference b). We are currently in a refueling outage that began on February 22, 2005 and our inspection of the Reactor Pressure Vessel Head (RPVH), as required by Reference (b), is underway. We are supplementing the initial relaxation request (Reference a), based upon field information received regarding our initial inspection results.

Calvert Cliffs Nuclear Power Plant hereby submits Attachment (1), a supplemental request for relaxation from certain inspection requirements of Reference (b), Section IV.C(5)(b)(i). Please note that this is the last high susceptibility inspection of this reactor vessel head. We continue to plan for reactor vessel head replacement on this Unit in 2007.

Due to our outage schedule, we request approval of the relaxation on or before March 11, 2005. We expect to provide specific information about the nozzles for which relaxation is requested, as committed to in Reference (a), by March 9, 2005.

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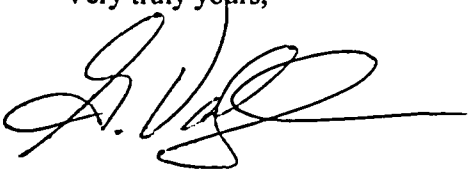
Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,



GV/PSF/bjd

Attachment: (1) Supplemental Request for Relaxation of Order Requirement IV.C (5) (b) (i) for Calvert Cliffs Nuclear Power Plant Unit 2

cc: C. W. Fleming, Esquire
R. V. Guzman, NRC
S. J. Collins, NRC
Resident Inspector, NRC
R. I. McLean, DNR

ATTACHMENT (1)

SUPPLEMENTAL REQUEST FOR RELAXATION OF ORDER REQUIREMENT IV.C (5) (b) (i) FOR CALVERT CLIFFS NUCLEAR POWER PLANT UNIT 2

Calvert Cliffs Nuclear Power Plant, Inc.
March 4, 2005

ATTACHMENT (1)

SUPPLEMENTAL REQUEST FOR RELAXATION OF
ORDER REQUIREMENT IV.C(5)(b)(i)
FOR CALVERT CLIFFS NUCLEAR POWER PLANT UNIT 2

RELAXATION REQUEST:

Pursuant to the procedure specified in Section IV.F (2) of Nuclear Regulatory Commission (NRC) Revised Order EA-03-009 (Reference 1), Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) hereby submits a supplemental request for relaxation from certain inspection requirements of the Revised Order. Specifically, the relaxation request involves a requirement in Section IV.C(5)(b)(i) of the Revised Order as described below. The relaxation requested in this letter is identical to the relaxation requested in Reference (1). The information used to justify this supplement to our original request (Reference 5) is a reprise of the justifications used for relaxation of below-the-weld requirements on Unit 1 in 2004 (Reference 2, 3, and 4).

A. Order Requirement from Which Relaxation is Requested:

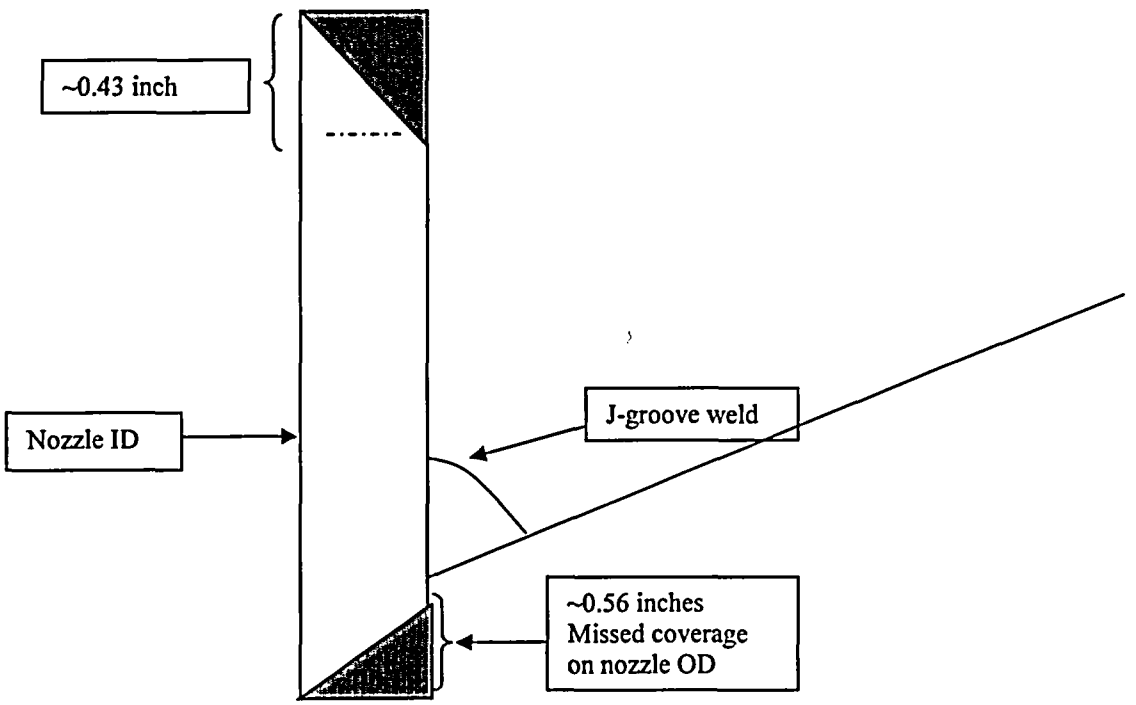
Requirement in Section IV.C(5)(b)(i) of the Order for ultrasonic testing of each RPV head penetration nozzle (i.e., nozzle base material) to the bottom of the nozzle, specifically, missed examination coverage near the bottom end of the CEDM nozzles due to instrument limitation. Reference (5) noted our expectation for examination results consistent with those obtained during the 2004 Unit 1 inspection, due to the use of an identical axial ultrasonic test (UT) probe design. Initial results on Unit 2 this year, using the axial UT probes, have resulted in a decision to switch to circumferential probes to ensure adequate inspection coverage of the most critical weld areas. We now expect our results to be more consistent with those obtained during the 2003 Unit 2 inspection (Reference 6) because of this change. (Note: This relaxation request applies only to CEDM nozzles. The in-core instrumentation nozzles and vent line were inspected using a rotating probe that does not have the limitations described for the blade probe.)

B. Specific Penetration Nozzles For Which Relaxation Is Requested:

This relaxation request applies to all CCNPP Unit 2 CEDM penetrations 1 through 65. The un-interrogated area at the bottom end of the CEDM nozzles is due to the configuration of the ultrasonic transducers in the probes used to examine the nozzles. These probes have separate transducers for sending and receiving the ultrasonic signal. The transducers are arranged one above the other nominally 0.86-inch apart. With this configuration, the lower transducer will not contact the inside wall on the nozzle until the upper transducer is inserted greater than approximately 0.86-inch into the nozzle. Since the scanning process requires that both transducers be in contact with the surface, the probe cannot scan the outer portion of the bottom of the nozzle. Based on the geometry involved in the transducer location and nozzle configuration, the portion that cannot be scanned is the portion extending from the bottom of the nozzle upward for a distance of approximately 0.56-inch. The value is half the distance between the two transducers plus a 1/8-inch radius at the bottom corner of the nozzle. The actual volume of unobtainable coverage is triangular in cross-section. The inside diameter of the nozzle receives relatively complete coverage (with a lateral wave), while the UT angle defines a triangle hypotenuse extending from the nozzle inside diameter lower end, to a spot on the nozzle outside diameter, located approximately 0.56-inch above the bottom of the nozzle. The other legs of the triangle are the lower portion of the nozzle outside diameter and the bottom surface of the nozzle. Figure (1) illustrates the un-interrogated area.

FIGURE 1

Circumferential Probe Inspection Coverage.



It is our intention to interrogate, via circumferential UT probe, each CEDM nozzle to a minimum axial distance of 0.4 inches below the lowest point of the J-groove weld. In the event the 0.4 inch distance cannot be achieved, nozzle inspection results will be provided to demonstrate that any remaining flaw in the CEDM nozzles would not exceed the NRC's flaw tolerance guidelines (as summarized in Table 1, below).

Finite element analyses specific to Calvert Cliffs were performed to determine the operating stresses in the CEDM nozzles. Results from this finite element model were used to support both the 2003 (Reference 7), 2004 (References 2, 3, and 4) and current submittal.

C. Justification for Relaxation Request:

Compliance with the requirements specified in the Order would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Examination of the bottom of the nozzle could be accomplished by surface examination. However, this alternative has prohibitive worker dose implications without a commensurate increase in quality or safety. Removal of thermal guide sleeves to provide access for a rotating probe has similar dose implications that present hardship with no commensurate increase in safety or quality as described in our January 14, 2005 submittal (Reference 5).

The UT coverage area achieved provides an acceptable level of quality and safety because the un-interrogated area involves a portion of the nozzle at the very bottom, below the J-groove weld. Below the J-groove weld, the nozzle is essentially an open-ended tube and the nozzle wall in this portion is not part of the Reactor Coolant System pressure boundary. To determine the significance of an axial flaw that is contained in the non-pressure boundary nozzle material in the un-interrogated region of the nozzle, plant specific flaw growth analyses were performed. These analyses determined the maximum flaw sizes that would satisfy NRC flaw evaluation guidelines for axial flaws that might be located below the CEDM nozzle welds. The analysis methodology for the flaw tolerance approach is summarized in Reference (3).

We postulated through-wall axial flaws extending from the bottom of the nozzle towards the weld to determine the maximum-length-flaws that would not grow to the bottom of the weld in a single two-year inspection interval. Table 1 and Figure 2 represent the minimum area that must be inspected to satisfy the flaw tolerance evaluation. As indicated in previous Requests for Additional Information (References 3 and 4), the crack growth analysis and acceptance criteria conform to NRC provided guidelines.

Table 1

Maximum Growth of Bounding Axial Through-Wall Flaws Below the Weld
(Bounding for all Weld Lengths)

Location	Downhill Side (A)	Uphill Side (B)
0° Nozzle	0.324"	0.324"
11° Nozzle	0.179"	0.386"
29° Nozzle	0.191"	0.361"
43° Nozzle	0.200"	0.360"

See Figure 2 below for location of the downhill and uphill sides identified in Table 1 above.

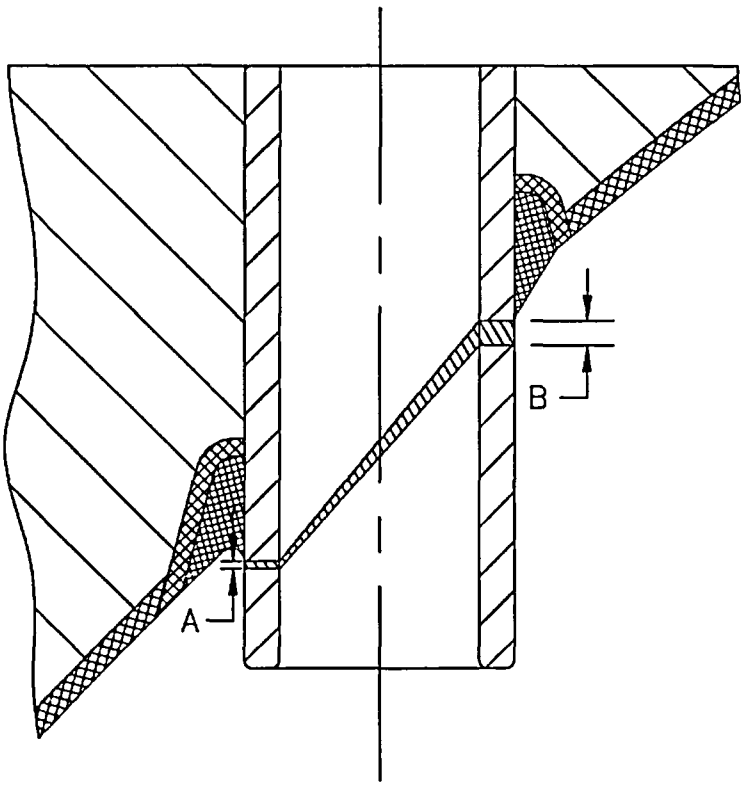


Figure 2

CONCLUSION:

As described above, compliance with the Order requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, in accordance with the provisions of Section IV.F(2) of the Order, we request relaxation of the requirement described in Section IV.C(5)(b)(i).

REFERENCES:

(1) Letter from R. W. Borchardt (NRC) to Holders of Licenses for Operating Pressurized Water Reactors, dated February 20, 2004, "Issuance of First Revised Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors" (EA-03-009)

(2) Letter from Mr. G. Vanderheyden (CCNPP) to Document Control Desk (NRC), dated January 30, 2004, Request for Relaxation from NRC Order EA-03-009, "Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

(3) Letter from Mr. G. Vanderheyden (CCNPP) to Document Control Desk (NRC), dated April 13, 2004, "Response to Request for Additional Information Regarding Interim Inspection Requirements for Reactor Pressure Vessel Head (TAC No. MC1921)"

(4) Letter from G. Vanderheyden (CCNPP) to Document Control Desk (NRC), dated April 27, 2004, "Supplemental Data for Request for Relaxation from Interim Inspection Requirements for Reactor Pressure Vessel Heads (TAC No. MC1921)"

(5) Letter from Mr. G. Vanderheyden (CCNPP) to Document Control Desk (NRC), dated January 14, 2005, Request for Relaxation from NRC Revised Order EA-03-009, "Issuance of First Revised NRC Order Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors"

(6) Letter from P. E. Katz (CCNPP) to Document Control Desk (NRC), dated June 3, 2003, "60 Days After Restart Report – NRC Order EA-03-009, Interim Inspection Requirement for Reactor Pressure Vessel Heads at Pressurized Water Reactors)"

(7) Letter from P. E. Katz (CCNPP) to Document Control Desk (NRC), dated April 9, 2003, "Supplemental Data for Request for Relaxation from Certain Inspection Requirements in NRC Order (EA-03-009) for Reactor Pressure Vessel Head Penetration Nozzles (TAC Nos. MB7752 and MB7753)"